



UNITED STATES PATENT AND TRADEMARK OFFICE

2
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/635,968	08/10/2000	Dan Botez	032026-0471	6270
23524	7590	07/30/2003		
FOLEY & LARDNER 150 EAST GILMAN STREET P.O. BOX 1497 MADISON, WI 53701-1497			EXAMINER JACKSON, CORNELIUS H	
			ART UNIT 2828	PAPER NUMBER

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/635,968	BOTEZ ET AL.	
	Examiner	Art Unit	
	Cornelius H. Jackson	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 21 April 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 27-43 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 27-43 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Paul J
PAUL JIP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Acknowledgment

1. Acknowledgment is made that applicant's Amendment, filed on 21 April 2003, has been entered. Upon entrance of Amendment, claim 27 has been amended. Claims 27-43 are now pending in the application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 27-43 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements and essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted element being the element used to perform the function of blocking current flow and the omitted structural cooperative relationships are the relationship of such element with the layers of the semiconductor structure, the distributed feedback grating and the distributed Bragg reflector grating.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 27, 28, 31, 32, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinoshita (6330265). Kinoshita discloses a surface emitting semiconductor laser **Figs. 1, 2A, 3-7B, 5, 24B, 25B, 26B and 31** comprising a semiconductor structure including a substrate **1** and an epitaxial structure on the substrate **1**, the epitaxial structure including a layer with an active region **3** at which light emission occurs, an upper **5** and lower **2** cladding layers surrounding the active layer **3**, upper and lower faces, edge faces that terminate the semiconductor structure longitudinally, and electrodes, **see col. 7, lines 10-17**, at the upper and lower faces by which voltage can be applied across the epitaxial structure and the substrate **1**; a distributed feedback grating **10, col. 7, lin s 18-52** incorporated with the epitaxial structure comprising periodically alternating grating elements for a selected effective

wavelength of light generation from the active region **3**, the grating having a spacing between adjacent grating elements at a position intermediate the edge faces that corresponds to a selected phase shift **11** in the grating **10**, the grating **10** formed and positioned to act upon the light generated in the active region **3** to produce lasing action and emission of light from at least one of the upper and lower faces of the semiconductor laser; and distributed Bragg reflector gratings **20**, **21A(-E)** incorporated with the epitaxial structure adjacent the distributed feedback grating **10** to reflect light back to the distributed feedback grating **10** with structure blocking current flow through the Bragg reflector gratings, **see col. 27, line 4-col. 28, line 67.**

In regards to claim 28, Kinoshita discloses the distributed feedback grating is formed of alternating reflective and transmissive elements, **see col. 12, lines 5-32.**

In regards to claim 31, Kinoshita discloses means for confining the current from the electrode to a stripe region, **see col. 11, lines 6-15 or see Figs. 24A-26B and col. 27, line 4-col. 29, line 20.**

In regards to claim 32, Kinoshita discloses all the stated limitations, **see Figs. 1, 2A, 3-7B, see col. 7, lines 10-17 and col. 8, lines 3-19.**

In regards to claim 37, Kinoshita discloses the spacing is in the middle of the grating, **see Figs.1, 2A, 3, 5.**

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 29, 30, 33-36 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita (6330265). Kinoshita, as applied to claims 27, 28, 31, 32, and 37 above, teach all the stated limitations except for the reflective grating element being made of gold and/or the transmissive grating element being air. Kinoshita does teach that high reflectivity regions may be formed by using metal films and transmissive regions being a window, **see col. 12, lines 5-29**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a known material to reflect or transmit part of the laser output, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regard to claims 33-36 and 38-43, the materials, **see col. 12, lines 5-12**, wherein the active and cladding layers are made of, are well known in the art in order to obtain a laser of a desired wavelength. It would have been a matter of obvious design choice to select the materials wherein the active and cladding layers are made of based on their suitability for which they are to be used.

Response to Arguments

9. Applicant's arguments filed 21 April 2003 have been fully considered but they are not persuasive.

Applicant argued the following:

- a. Kinoshita does not have each and every one of the features specified in independent Claim 27.
- b. Kinoshita patent operates in an entirely different manner than applicants' invention as claimed.
- c. The structures labeled 20 and 21A in Kinoshita are not distributed Bragg feedback gratings. The multilayered structure of Kinoshita may provide Bragg type reflection, but should not be confused with Bragg reflector gratings which function in an entirely different manner.
- d. The reflectors of Kinoshita are not positioned adjacent to each of the longitudinal feedback grating.

Examiner replies to Applicants' argument are as follows:

- a. Kinoshita does teach each and every element of the claimed invention as referenced in the 102 rejections to claims 27, 28, 31, 32 and 37 above.
- b. The operation of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the operation, then it meets the claim. In a claim drawn to a process of making, the operation must result in a manipulative difference as compared to the prior art. See *In*

re Casey, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

c. Kinoshita does teach the Bragg reflectors function in the same manner as claimed, e.g. "incorporated with the epitaxial structure adjacent the distributed feedback grating 10 to reflect light back to the distributed feedback grating 10", **See Fig. 1 and col. 12, line 64-col. 13, line 4.**

d. Claims 27-43 fail to specify the manner in which the distributed Bragg reflector gratings and the distributed feedback gratings are adjacent to one another and what is the longitudinal direction.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul Ip
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

CHJ
chj
July 26, 2003